INSTALLATION /OWNER'S MANUAL

2300 & IO-210

SERIES

HIGH EFFICIENCY
INFRA-RED PATIO HEATER
FOR OUTDOOR AND NON RESIDENTIAL
INDOOR SPACES

FOR YOUR SAFETY:
Do not store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other appliance.
If you smell Gas:
>Shut off gas to the appliance
>Extinguish any open flames
>Don't touch electrical switches
>Call your Gas supplier immediately

FIELD CONVERTIBILITY:
"The conversion shall be carried out in accordance with the requirements of the authorities having jurisdiction and in accordance with the requirements of the B149.1 (latest edition) INSTALLATION CODE" in Canada, and the ANSI Z223.1 (latest edition) in the U.S.A.

MEMBER OF

Canadian Restaurant and Foodservices Association
Association canadienne des restaurateurs et des services alimentaires

2300 / IO 210 Manual
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NOTICE:

The manufacturer reserves the right to make changes to equipment and specifications without obligation or notification.

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2300 /IO-210
SERIES

INFRA-RED PORTABLE PATIO HEATER FOR OUTDOOR AND NON RESIDENTIAL INDOOR SPACES

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IMPORTANT NOTICES AND WARNINGS:

Important notice To Installer:

Installation and repairs must be done by a qualified service person.

This Operation & Instruction manual is not to be removed from the site. It MUST be given in its entirety to the consumer and retained for future reference.

Warning

- Improper Installation, adjustment, alteration, service or maintenance can cause injury or property damage. READ the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment. It is imperative that control compartment, burners and circulating air passageways be kept clean and unobstructed.

Warning

- Due to the effects of radiant heat upon certain materials it is not recommended to store or place items that could be damaged or distorted, directly under this heater....i.e. Non combustible patio furniture etc.

- Children and Adults should be alerted to the hazards of high surface temperatures and should be careful to avoid burns or clothing ignition.
- Young children should be carefully supervised when in the area of a heater.
- Clothing or other flammable materials should not be hung from, or placed near to the heater.

Warning

Keep this appliance area free from combustible materials, gasoline and other flammable vapours and liquids.

1. GENERAL

The gas fired infra-red combined intensity heaters are suitable to be installed for heating of outdoor and non residential indoor spaces. These installation instructions are intended for the Series 2300 / IO 210 Heaters.
All installations must conform to the following:, all local and national code requirements including the current CAN/CGA-B149.1 installation code for gas burning appliances and equipment as well as the Canadian Electrical Code PART 1 CSAC22.1 (latest edition) must be observed. All installations in the U.S.A. must conform to local and national code requirements including, National Fuel Gas code ANSI Z223.1, and the National Electrical Code ANSI/NFPA No 70 (latest edition). Due to ever changing standards and requirements, revision to equipment and installation procedures may be necessary. In case of discrepancies, the latest installation manual will take priority.

This heater is designed and certified for use on outdoor patio's in accordance with ANSI standards CAN1-2.17-M91 & CSA 5.90 (5th ed.) U.S.
Schwank Group warrants that the heater will operate as designed in mild wind conditions up to 10 MPH. Note this unit is not designed to operate in adverse weather conditions including higher wind speeds exceeding the certification requirement of 10 MPH.

2. INSTALLATION REQUIREMENTS

2.1 MOUNTING CLEARANCES

Series 2300 / IO 210 Heaters must be mounted with minimum clearances as shown in Section 8.4. It should also be located with respect to building construction and equipment so as to provide sufficient clearance and accessibility for servicing and cleaning of burners and ignition control. Minimum mounting height is to be no less than 96". Do not store or place anything directly underneath heater

2.2 HEATER MOUNTING

Series 2300 / IO 210 Heaters are approved for both horizontal and angle mounting. Schwank recommends a maximum 30° mounting angle in most applications - if the short axis is rotated to an angle exceeding 30°; a large portion of infrared heat may be directed above the heads of seated occupants in many applications. Refer to Diagram 8. Improper angle mounting can result in damage to the heater or unsafe operation, and will void warranty.

IMPORTANT: *For either horizontal or angle mounting, the long axis of the heater must be level. Use only non-combustible mounting hardware. Diagram 2 on Page 5 illustrates typical suspension hardware that may be used., and provided by Schwank as an optional component.*

2.3 GAS SUPPLY LINE INSTALLATION

- All piping must be installed according to local codes.
- An approved flexible connector between the heater and gas piping must be installed. The same is available as an option from Schwank.
- A drip-pocket at the inlet connection must be provided.
- On propane-fired units, a main line filter is recommended.
- Piping joint compounds must be resistant to the action of liquefied petroleum gases.
- All piping joints should be tested for leaks with a soap and water solution.

2.4 GAS PRESSURE

The maximum supply pressure must be limited to 14" w.c. (0.5 psi). If the line pressure is above 14" w.c., then a separate pressure reducing regulator must be installed. The minimum pressure at the inlet to the heater regulator must be equal to or greater than 6.0" w.c. for natural gas and 11.0" w.c. for propane gas.

CAUTION: *DO NOT INSTALL ANY GAS PIPING IN HEAT ZONES.*

Proper manifold pressure will be maintained when the main burner is operating under the following supply pressure:

	LINE PRESSURE w.c."		MANIFOLD PRESSURE w.c."
	MINIMUM	MAXIMUM	AT GAS VALVE TEST POINT
NATURAL GAS	6.0	14.0	5.0
PROPANE GAS	11.0	14.0	10.0

Natural Gas: models are orificed for 1000 BTU/CU.FT.
Propane Gas: models are orificed for 2500 BTU/CU.FT.

3. INSTALLATION PROCEDURES

a) Properly install gas line as outlined in Section 2.3.

b) Mount heaters by using non-combustible mounting hardware as illustrated in Diagram 2. Observe the minimum clearances as outlined in Sections 8.4 and suggested mounting distances in section 8.5

WARNING: *When using Wall Mounting Bracket JP-2300-MB, or Arm Mounting Bracket JP-2300-MA, ensure the anchoring to the structure is of sufficient strength, quality and workmanship, to support the weight of the heater and any other loads such as snow.*

c) Connect heater to the main gas line. An approved 1/2" flexible connector (available as an option from the manufacturer) must be used to absorb gas line expansion and any vibration - check local code requirements.

(d) Check gas line for leakage by using soap test or gas meter test. Ensure gas pressure meets the requirements out lined in Section 2.4 (above).

WARNING: *When testing the main gas line pressure up to 0.5 psig, ensure that the isolation valve and combination gas valve are "OFF", otherwise damage to the combination gas valve will result. When testing gas line in excess of 0.5 psig the appliance and shut off valve must be disconnected from the gas supply piping system during any such pressure testing.*

e) Ensure proper electrical rating in the system by checking voltage at ignition module terminals. To avoid system malfunction, the voltage range must be within 21.6 Volts to 26.4 Volts, and correct polarity must be maintained throughout the system.

f) Test-fire the heating system by following the lighting instructions as shown below and on heater.

4. LIGHTING INSTRUCTIONS

1. Ensure the correct voltage is supplied and gas valve is in the ON position.
2. Turn on power to heater, set thermostat (if applicable) to desired setting, the heater will light.
3. If heater does not light: Turn off power to heater, turn gas valve to OFF position.
4. Wait for five minutes and repeat steps above. If heater does not light after three attempts, call a qualified service technician.

5. SHUT DOWN INSTRUCTIONS

a) For temporary shutdown, turn off the electrical circuit.
b) For complete shutdown, turn off the electrical circuit and turn gas control knob to the "OFF" position.

6. HEATER FINISH AND APPEARANCE

Exterior heater surfaces, including stainless steel components, are coated with a black high emissive coating that helps preserve the aesthetic appearance of the heater and improves the radiant heat output.

With extended use, the finish coat may discolor and deteriorate to some extent due to the impact of heat and the deposit of ambient air born particles. In some environments, the stainless steel lens cover may experience some surface oxidization and discoloration. These are normal occurrences caused by heat and products of combustion and in no way affect the operation and performance of the heater or the manufacturer's warranty.

OCCASIONAL FINISH MAINTENANCE:

Wear protective gloves, eyewear, and breathing mask. Ensure that power to the heater is disconnected prior to maintenance and the application of any finish coating. Use a fine steel wool to remove blemishes or unsightly deposit, and smooth the outer surface. The heater finish coat can be touched up using a high temperature coating such as Thurmalox Stove Paint -Flat Black- 1200°F (650°C) or similar high temperature stove paint that is compatible with the original finish. **No other coating or non-high-temperature paint finish may be applied to the heater – use of an incompatible finish coating could create a hazardous condition such as fire or noxious fumes, damage the heater, and void the warranty.**

Apply the touch up finish with the heater in its operating orientation (facing down). Ensure that overspray does not effect the burner tile surface - insert a paper masking above the lens screen being coated. Remove the paper masking immediately after re-finish and prior to operation of the heater.

7. SERVICING GUIDE (See Heater servicing on next page)

Servicing of heater is essential for continued efficient operation. Servicing should be carried out annually by qualified and licensed service personnel as follows:

- Clean the ceramic tile with compressed air. Avoid directing air stream at gasket material between tile and heater body. The air pressure **must be lower than 20 psig.**
- Clean the venturi tube with compressed air. The air pressure **must be lower than 20 psig**.

Indication of back firing:

- *Loud ignition noise, followed by distinct hissing sound.*
- *Little or no visible burning on the ceramic tile surface.*
- *Combustion is taking place inside the burner body.*

Cause & remedy of back firing:

- *Improper gas pressure entering the venturi tube: check pressure.*
- *Breakage of a ceramic tile and or gasketing: - replace damaged part.*
- *Faulty sealing of the ceramic tile to the burner body, caused by breakdown of gasket material: contact your local distributor or contractor.*

WARNING: *If heater backfires during operation, it **must** be turned off **immediately**.*

HEATER SERVICING INSTRUCTIONS:

WHEN USING WALL MOUNT BRACKET JP-2300-MB:

1. Slacken the upper bolt to allow the rotation of the mounting bracket and the heater.
2. Remove the lower bolt securing the bracket and rotate the bracket up to the service position.
3. Insert the bolt in the upper hole to hold the heater for servicing, and apply locking nut to bolt for extra safety. Heater panel can now be accessed and serviced safely.
4. **NOTE: Do not start up the heater when in this Service position as the gas valve is in a compromising position. Before starting the heater, ALWAYS restore the heater bracket back to its original plane and correct support position.**
5. To restore bracket, lift and support the weight of the heater and remove nut and bolt from upper hole.
6. Slowly rotate the heater back down to the correct lower position.
7. Insert and fasten the bolt in the bottom hole, and secure with the nut.
8. At completion of service, ensure that both support bolts are tightened securely.

8. CONFIGURATION

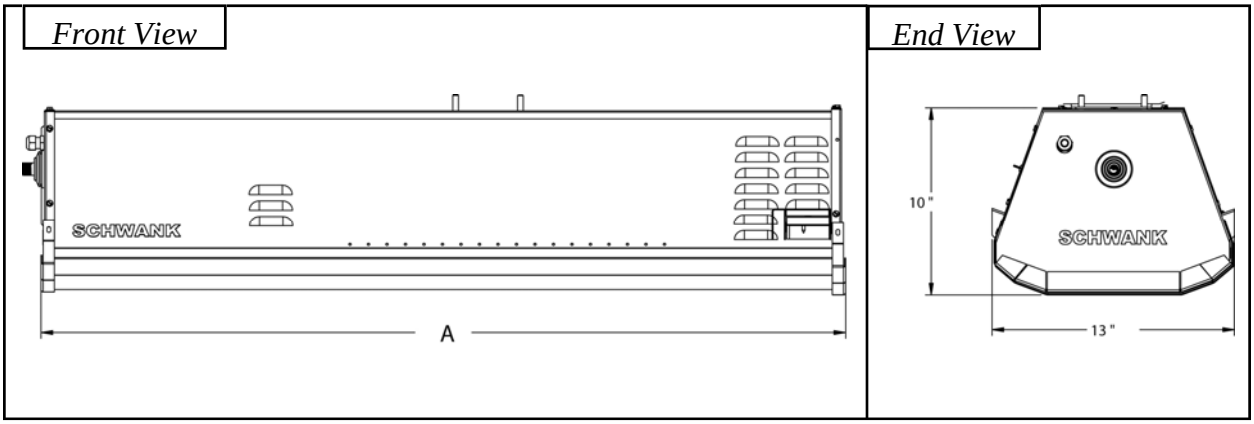
8.1 DIMENSIONS & CONFIGURATIONS FOR THE SERIES 2300 HIGH INTENSITY HEATERS

CAPACITIES & CONFIGURATIONS

MODEL	Voltage VAC	Current amps	Btu/hr input	Total Weight (lbs).	Length < A >
2312 / IO 212 -NG	24	40 VA*	23,000	32	30 1/2”
2312 / IO 212 -LP			23,000	32	30 1/2”
2313 / IO 213 -NG			35,000	44	43 1/2”
2313 / IO 213 -LP			35,000	44	43 1/2”
2315 / IO 215 -LP			50,000	48	43 1/2”
2315 / IO 215 -NG			50,000	48	43 1/2”

*** For a multiple installation, the first heater is sized at 40 VA and each consecutive heater will be sized at 20 VA. The sum total will be the required Transformer size. If total VA exceeds one size (in between sizes) select the next highest VA rating.**

Diagram 1: DIMENSIONS



8.2. MOUNTING KITS (NOTE: For unusual mounting application contact manufacturer.)

The heater is supplied with chain mounting bracket; JP-2300-HS
Other optional mounting kits are available:

ITEM NO	PART NUMBER	DESCRIPTION	QTY
1	JP-2300-MB	WALL MOUNTING BRACKET	1
2	JP-2300-MA	ARM MOUNTING BRACKET	1
3	JP-2300-PC	POST BRACKET	1

WARNING: *When using Wall Mounting Bracket JP-2300-MB, or Arm Mounting Bracket JP-2300-MA, ensure the anchoring to the structure is of sufficient strength, quality and workmanship, to support the weight of the heater and any other loads such as snow.*

8.3 MOUNTING OPTIONS FOR THE 2300 SERIES HIGH INTENSITY HEATERS

Diagram 2: MOUNTING KIT OPTIONS

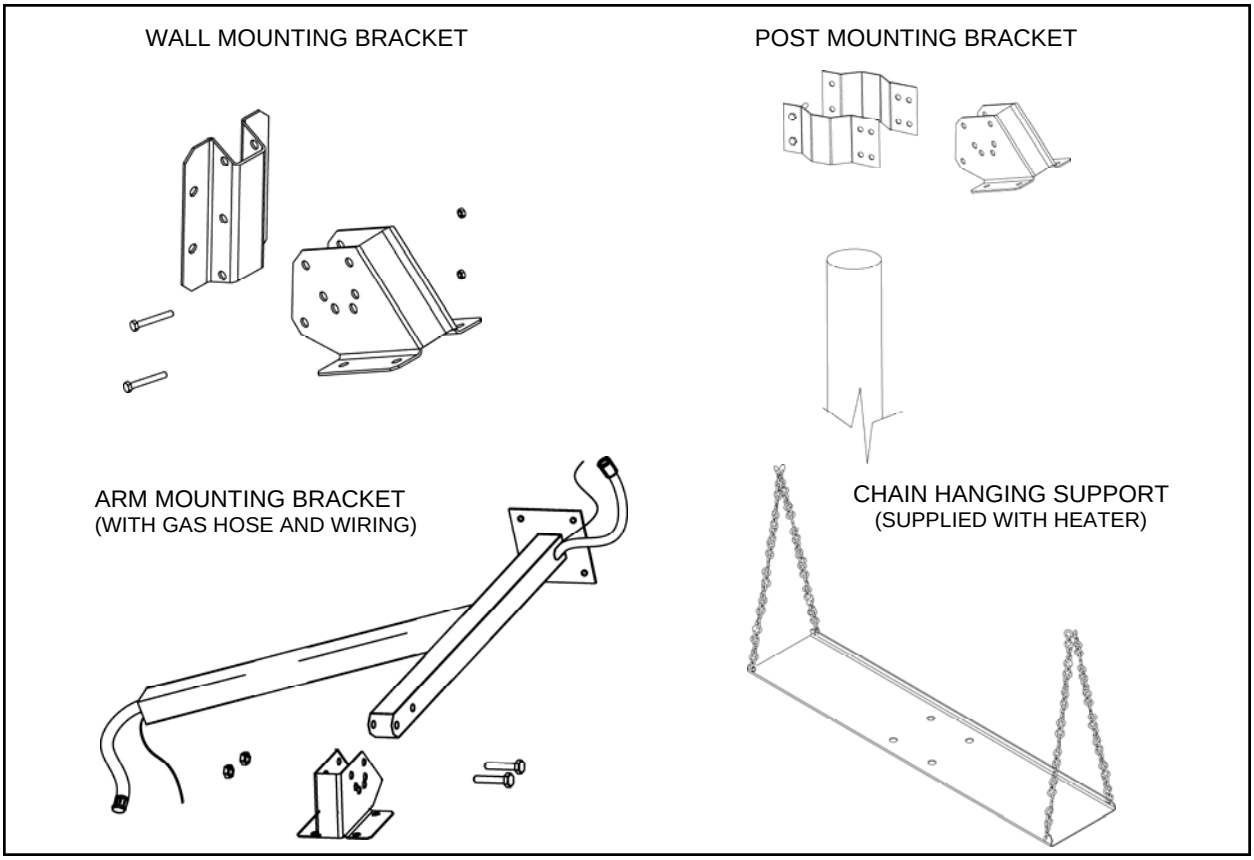


Diagram 3: MOUNTING OPTIONS

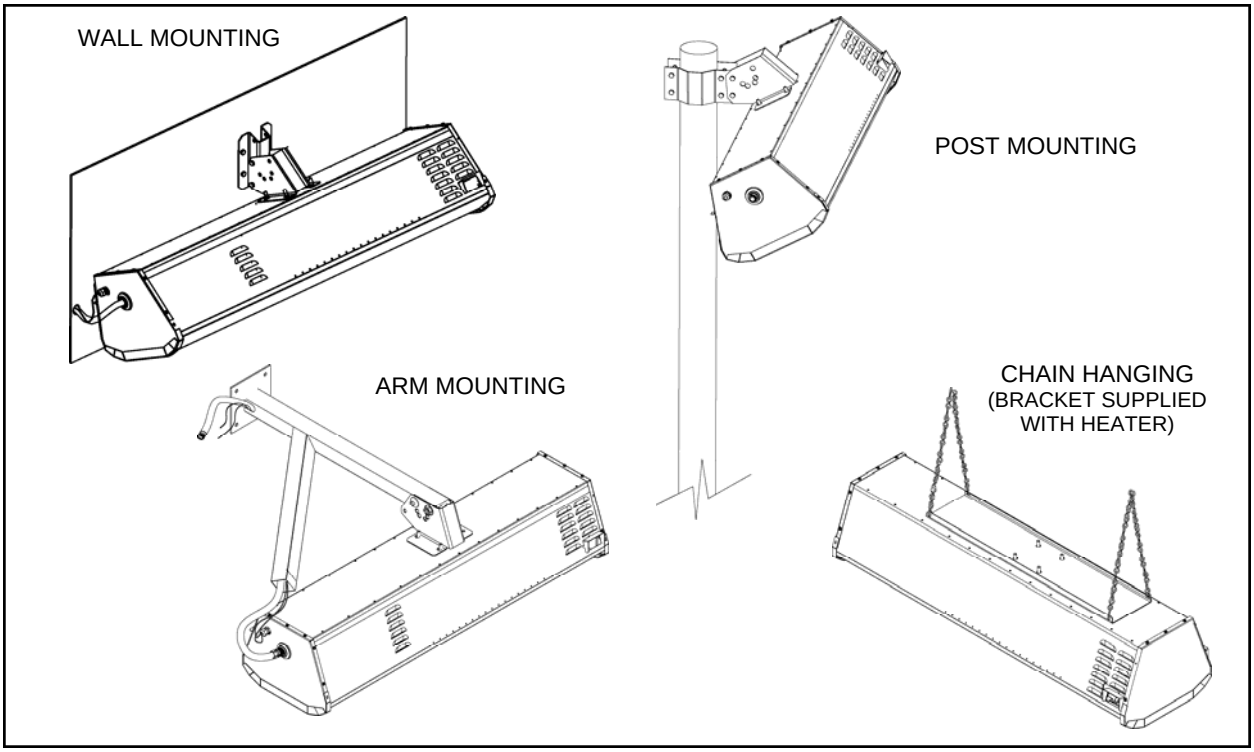


Diagram 4: **2300 MOUNTING ARM TEMPLATE**

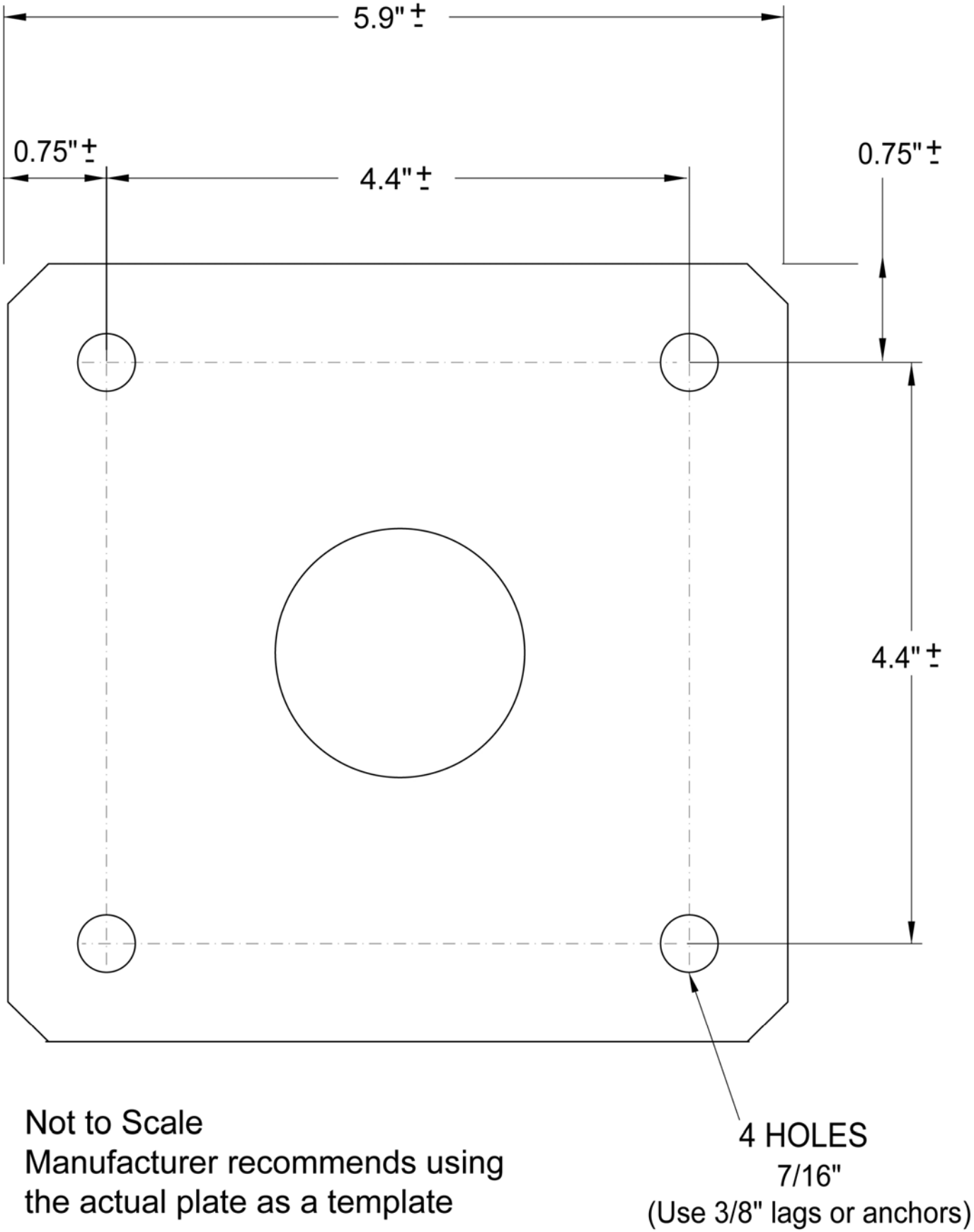
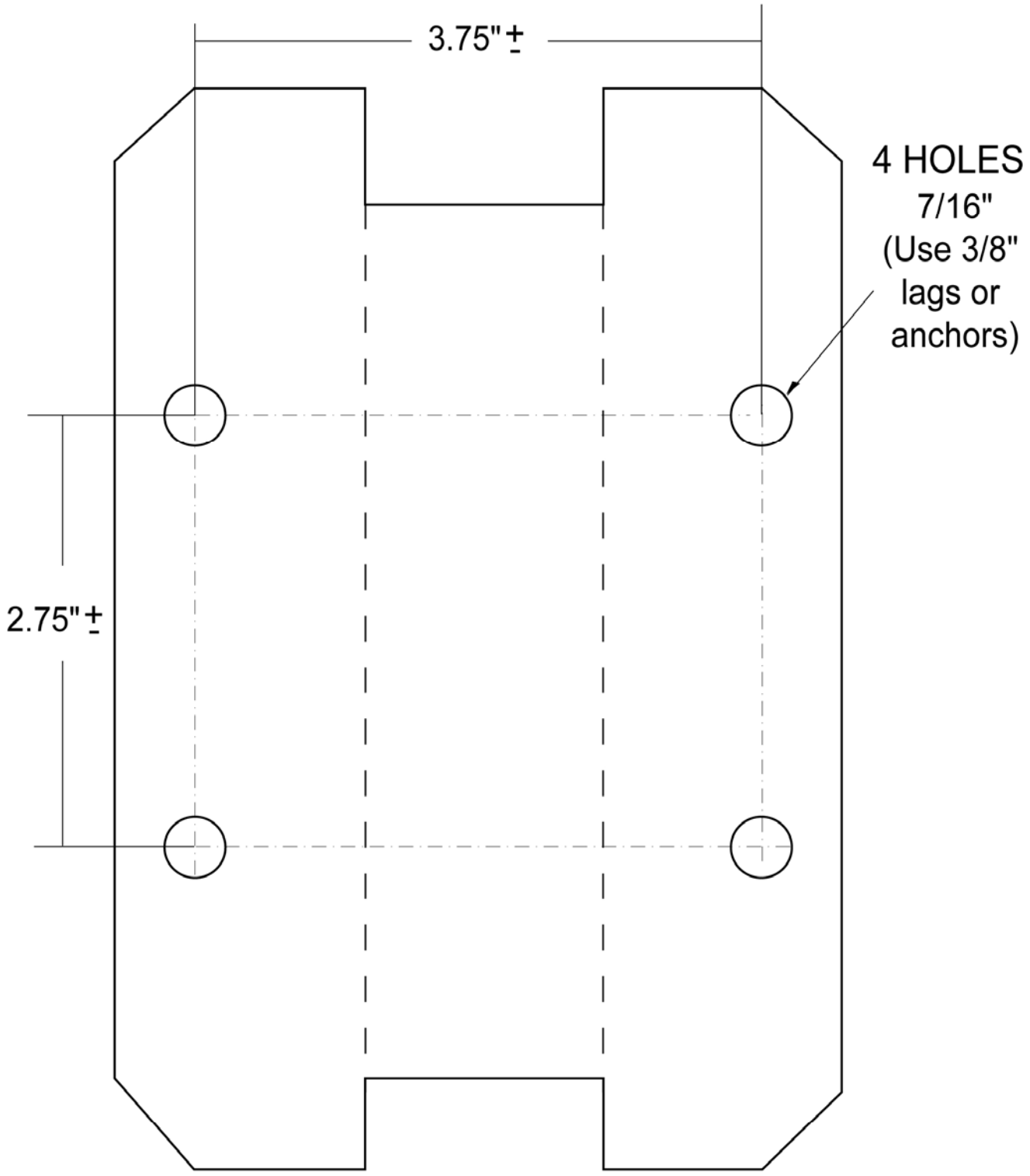
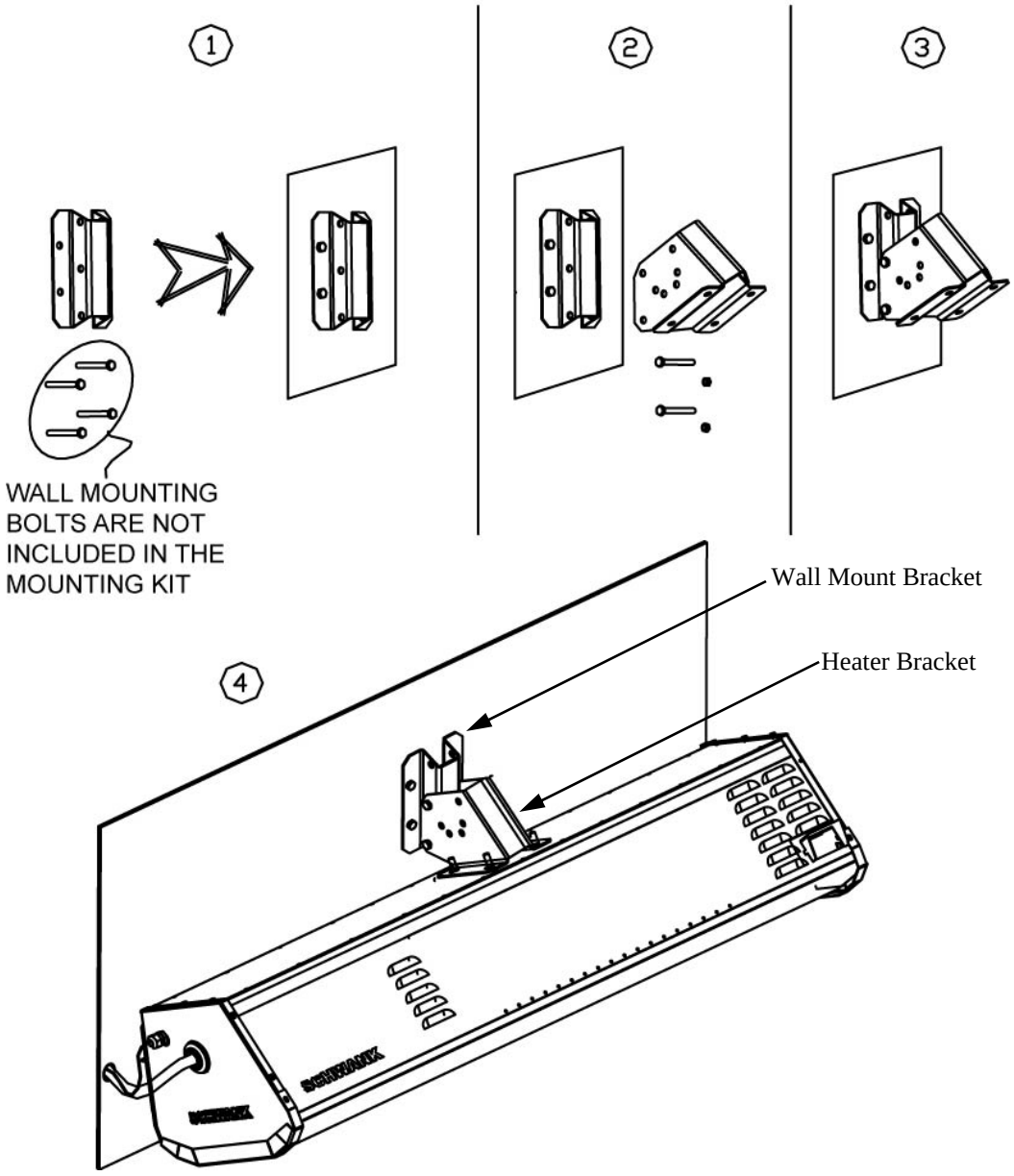


Diagram 5: **2300 WALL BRACKET TEMPLATE**



Not to Scale
Manufacturer recommends using
the actual plate as a template

Diagram 6: HEATER INSTALLATION



1. Install the Wall Mount Bracket on the wall, using four bolts...(not supplied). See warning note (page 5)
2. Install the heater bracket on the heater using four nuts.
4. Install the heater bracket to the wall mount bracket, and remove the chains from the top of the heater.

NOTE: The heater should be installed with enough slack on the wiring and a flexible gas connector to allow the rotation of the heater up to the service position.

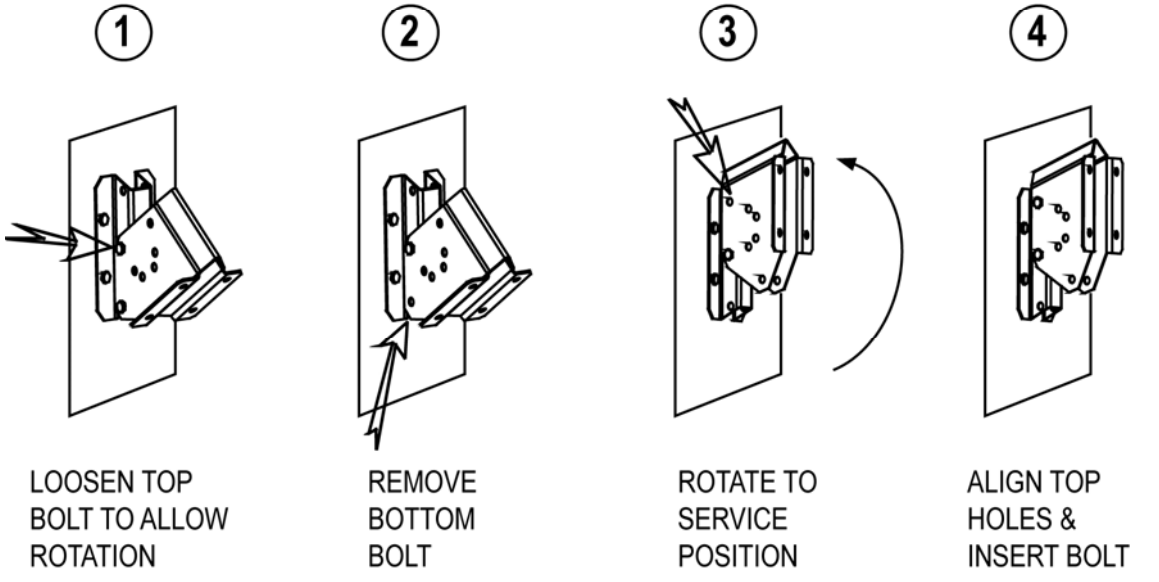
(See service installation on the next page).

Diagram 7: **SERVICING HEATER**

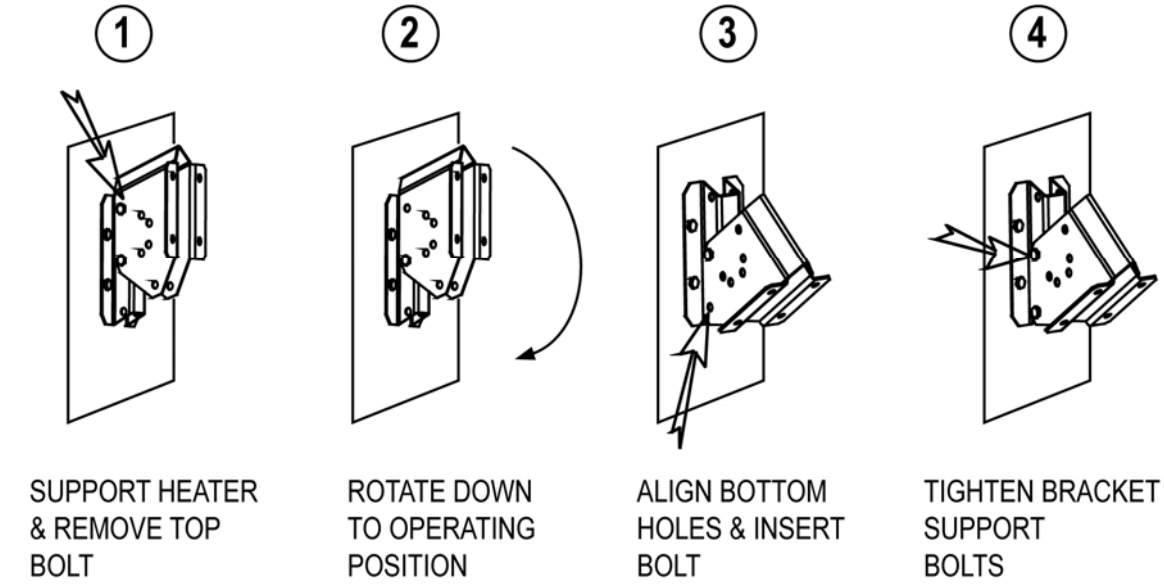
FOR SERVICING HEATER:

IT IS NOT NECESSARY TO REMOVE HEATER FROM SUPPORT BRACKET
DRAWINGS SHOW JUST THE BRACKET FOR BETTER VIEW

ROTATE TO SERVICE POSTITION



LOWER TO OPERATING POSITION



8.4 MINIMUM CLEARANCES TO COMBUSTIBLES: Table 2

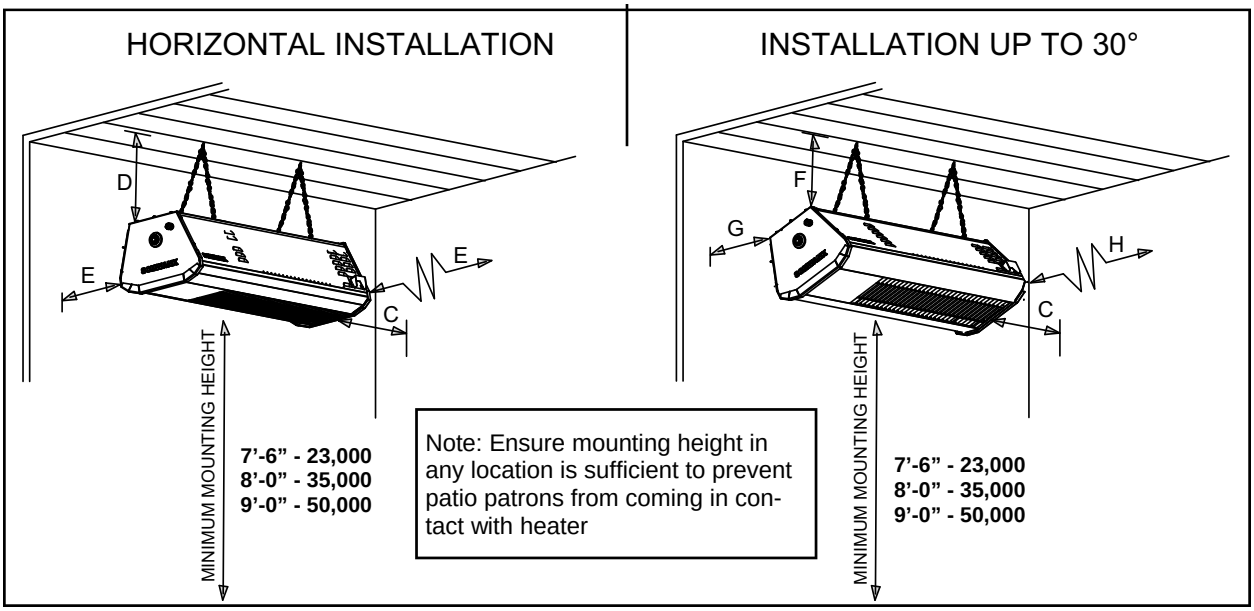
MODEL NO		Ends	Horizontal		30° Angle		
		C	D	E	F	G	H
2312 / IO 212 -N\L	OUTDOOR	3”	5.5”	7”	9.5”	1”	9.5”
2312 / IO 212 -N\L	INDOOR	4”	8”	10”	12.5”	2.5”	14”
2313 / IO 213 -N\L	OUTDOOR	5”	7.5”	9”	9.5”	1.5”	21”
2313 / IO 213 -N\L	INDOOR	6”	10.5”	14.5”	14.5”	2.5”	26”
2315 / IO 215 -N\L	OUTDOOR	16”	8”	13.5”	10”	2”	21”
2315 / IO 215 -N\L	INDOOR	17”	11”	19”	16.5”	3”	28.5”

The clearance to combustible material represents the minimum distance that must be maintained between the outer heater surface and a nearby surface. The stated clearance to combustibles represents a surface temperature of 90F° (50C°) above room temperature.

It is the installer’s responsibility to ensure that building materials with a low heat tolerance which may degrade at lower temperatures are protected to prevent degradation. Examples of low heat tolerance materials include awnings, vinyl siding, fabrics, some plastics, filmy materials, etc.

Diagram 8: MOUNTING CLEARANCES

Note: Do not store or place anything directly under heater



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8.5 SUGGESTED MOUNTING DISTANCES FOR COMFORT

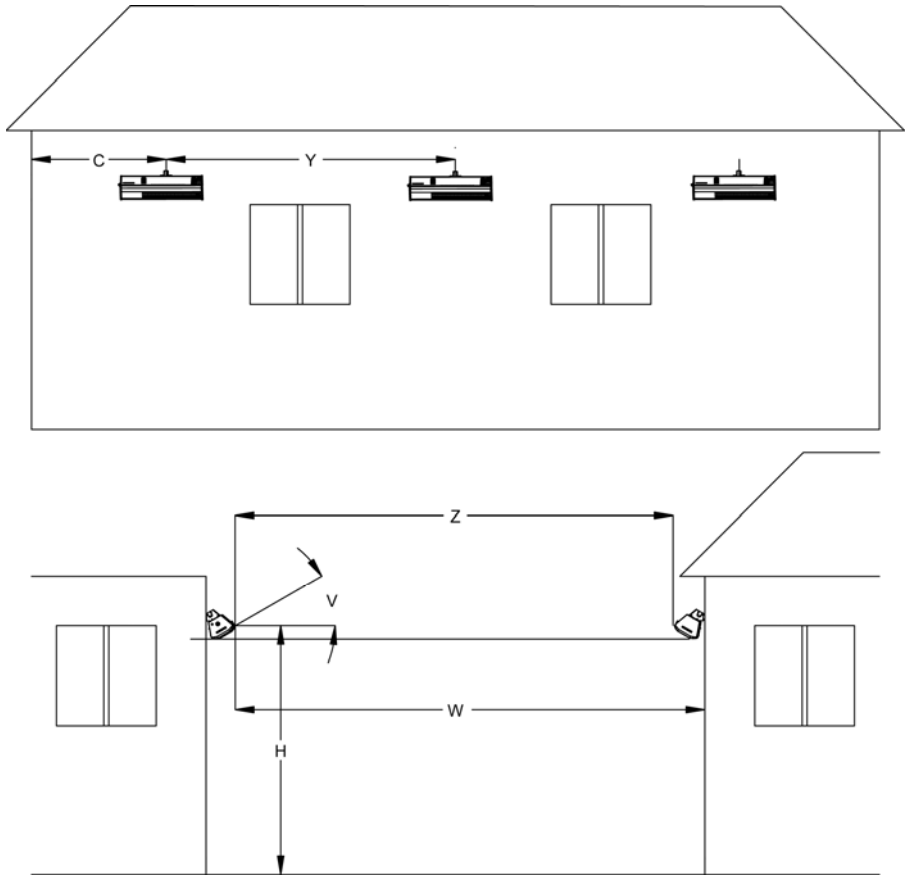
Mounting Parameters ***	**MODELS 2312 / IO 212**		**MODELS 2313 / IO 213**		**MODELS 2315 / IO 215**	
V—Mounting angle	**Horizontal**	**30^0**	**Horizontal**	**30^0**	**Horizontal**	**30^0**
H—Suggested mounting height to patio floor	7’ 6”	7’ 6”	8’ 0”	8’ 0”	9’0”	9’ 0”
C—Side distance to patio edge	3’ 6”	3’ 6”	4’ 0”	4’ 0”	5’ 0”	5’ 0”
Y—Side distance between heaters	6’ 0”	6’ 0”	8’ 0”	8’ 0”	10’ 0”	10’ 0”
W—Distance to wall in front	6’ 0”	7’ 0”	7’ 0”	8’ 0”	8’ 0”	9’ 0”
Z—Distance to heater in front	12’ 0”	14’ 0”	14’ 0”	16’ 0”	16’ 0”	18’ 0”

*** Note: These mounting angles and distances are suggested, and are subject to site and design conditions.

If in doubt, please contact your Schwank distributor.

Ensure mounting height in any location is sufficient to prevent patio patrons from coming in contact with the heater

Diagram 9: Distances/ Mounting Parameters



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9. ELECTRICAL REQUIREMENTS AND THERMOSTAT CONTROL

All electrical installations must meet local and the latest edition Electrical Code PART 1 CSA C22.1 in Canada and ANSI/NFPA N0 70 in the U.S.A.. Single heater requires 24 Volt, 60 Hz electrical transformer sized at 40 VA. If multiple heaters are connected to a single transformer, the proper transformer is 24 Volt, 60 Hz, sized at 40 VA for the first heater, and 30 VA each for all subsequent additional heaters. For example, four heaters wired together (parallel), require a transformer of 150 VA. It is recommended to install at most 2 heaters per zone for best comfort control and economy of operation. PROPER WIRING POLARITY MUST BE MAINTAINED, particularly when grouping the heaters in a zone.

Total wiring distances of up to 200' must use minimum 16 gauge electrical wire, and wiring distances of over 200' must use minimum 14 gauge electrical wire. The heater must be electrically grounded in accordance with the local

electrical code. Malfunction of the heating system will result if the voltage varies by more than +10% or -10%.

The heater can be controlled by a line moisture proof thermostat “off-on” switch, or Remote Control. Total load of all heaters must be considered in determining the required contact rating of the controlling thermostat or switch.

9.1. REMOTE CONTROL

Patio Heaters can be operated with Remote Control Option; JP-1234-RK and handset JP-1234-HS. Refer to the manual accompanying the remote control for installation.

10. SEQUENCE OF OPERATION FOR FENWAL 35-60 DSI CONTROL

Start up - Heat Mode:

On a call for heat the Fenwal 35-60 control will reset, perform a self check routine, flash the diagnostic LED for up to four seconds. The gas valve and spark are energized commencing the trial for ignition period. When flame is detected during the trial for ignition, spark is shutoff immediately and the gas valve remains energized. The thermostat and main burner flame are constantly monitored to assure the system continues to operate properly. When the thermostat is satisfied and the demand for heat ends, the gas valve is de-energized.

Flame Failure - Multi Trial Model:

Should the main burner fail to light, or the flame is not detected during the first trial for ignition period, the gas valve is de-energized and the control goes through an inter-purge delay before another ignition attempt. The control will attempt two additional ignition trials before going into lockout and the valve relay is de-energized.

Recovery from lockout requires a manual reset by either resetting the thermostat or removing 24 volts for a period of 5 seconds. If the thermostat is still calling for heat after one hour the control will automatically reset and attempt to ignite the burner again.

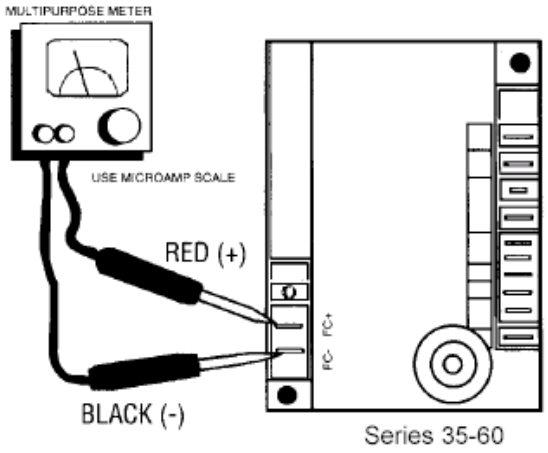
Flame Failure - Re-Ignition:

If the established flame signal is lost while the burner is operating, the control will respond within 0.8 seconds. The HV spark will be energized for a trial ignition period in an attempt to relight the burner.

If the burner does not light the control will make two more attempts to relight the burner before de-energizing the gas valve. If the burner does not relight, the control will go into lockout as noted above in “Failure to light”. If flame is re-established, normal operation resumes. Multi-try models will allow three tries for ignition including interpurges.

Flame current is the current which passes through the flame from the sensor to ground. The minimum flame current necessary to keep the Fenwal 35-60 system from lockout is 0.7 microamps (µA). To measure the flame current, connect analog DC microammeter to the FC-FC+ terminals.

Meter should read 0.7 µA or higher. If the meter reads below “0” on scale, meter leads are reversed. Disconnect power and reconnect meter leads for proper polarity.



Cautions:

1. Ceramic insulators should not be in or close to the flame.

2. Electrode assemblies should not be adjusted or disassembled. Electrodes should have a gap spacing of 1/8”- 3/16” (3.12± 0.81 mm). If this spacing is not correct, the assembly must be replaced. Electrodes are preset and NOT field adjustable.

3. Exceeding the temperature limits can cause nuisance lockouts and premature electrode failure.

The control must be secured in an area that will experience a minimum of vibration and remain below the maximum operating temperature of 160°F.

11. SPARK IGNITION CIRCUIT

The step-up transformer in the ignition control provides spark ignition at 30,000 volts (open circuit). To check the spark ignition circuit, proceed as follows.

1 Shut off gas supply to the gas control
2 Disconnect the ignition cable at the ignition control stud terminal to isolate the circuit from the spark igniter or igniter/sensor
3 Prepare a short jumper lead, using heavily insulated wire such as ignition cable

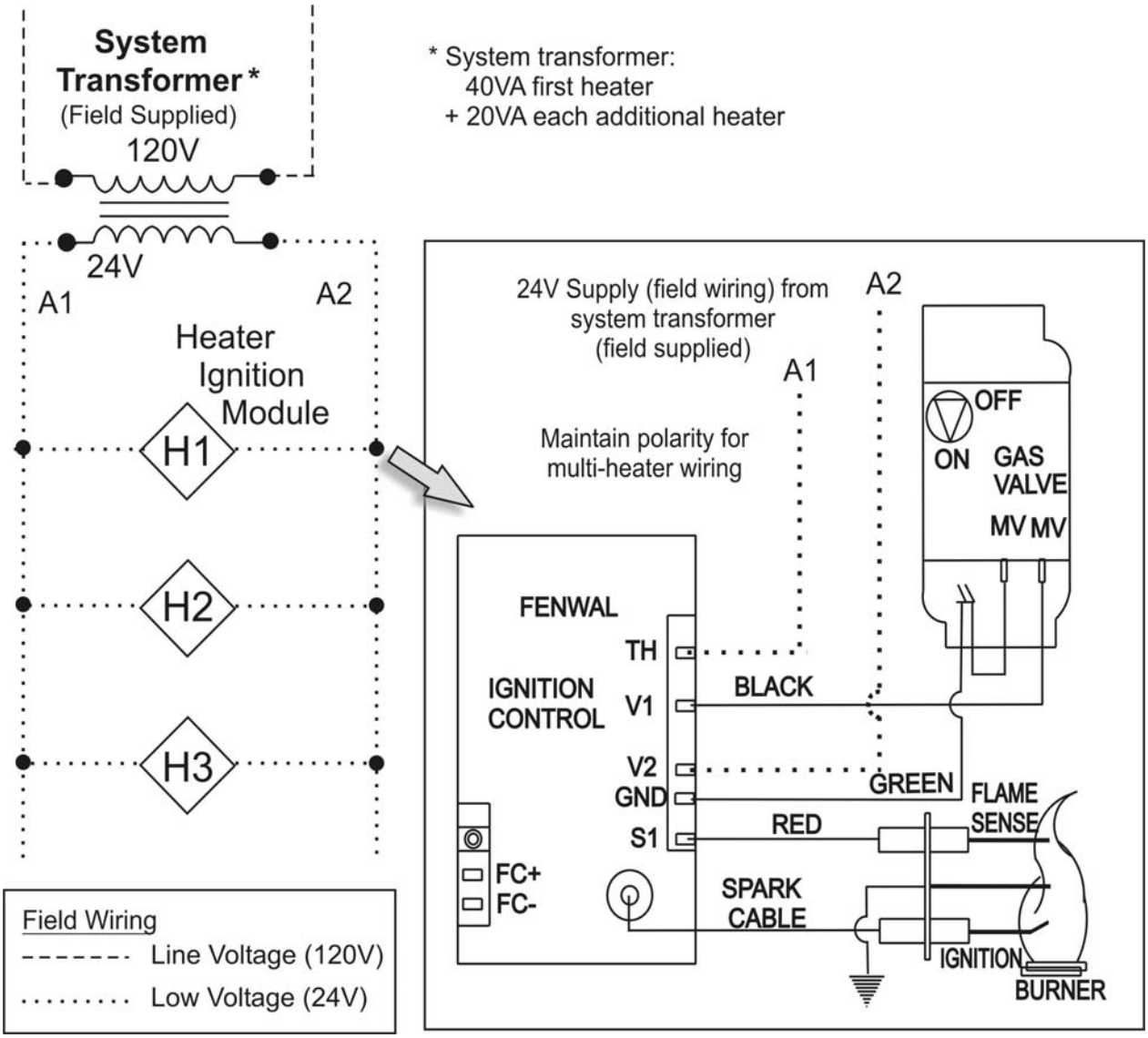
CAUTION

In the next step, DO NOT allow fingers to touch either the stripped end of the jumper or the stud terminal. This is a very high voltage circuit and electrical shock can result.

1 Perform this test immediately upon energizing the system before the ignition control goes into safety lockout and interrupts the spark circuit. Touch one end of the jumper firmly to the ignition control GND terminal. (DO NOT remove the existing ground lead.) Slowly move the other end of the jumper wire toward the stud terminal on the ignition control to establish a spark.
2 Pull the wire away from the stud and note the length of gap at which spark discontinues.
3 A spark length of 1/8 in. (3mm) or more indicates satisfactory voltage output. If no arc can be established, or the maximum spark is less than 1/8 in. (3mm), and power to the ignition control input terminals was proved, replace the ignition control.

12. WIRING DIAGRAM FOR 2300 / IO 210 SERIES with Fenwal 35-60 DSI Control

If installing remote control; JP-1234-RK, refer to wiring diagram in the remote control manual



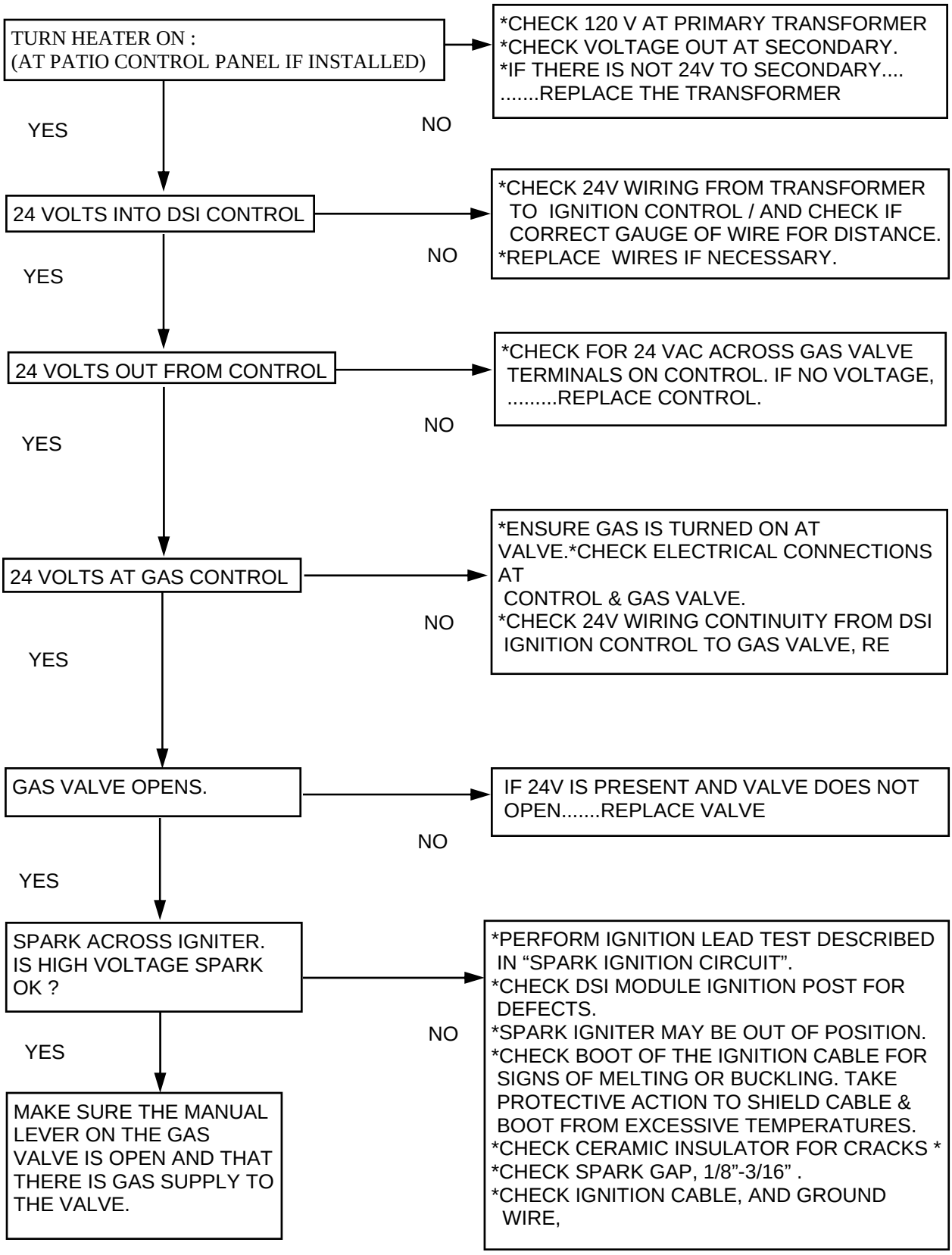
Fenwal Control Terminal Designation	
TH	Thermostat / 24V Supply Input
GND	System Ground
V1	Valve Power
V2	24V Supply Neutral
NC	Alarm
S1	Remote Flame Sensor

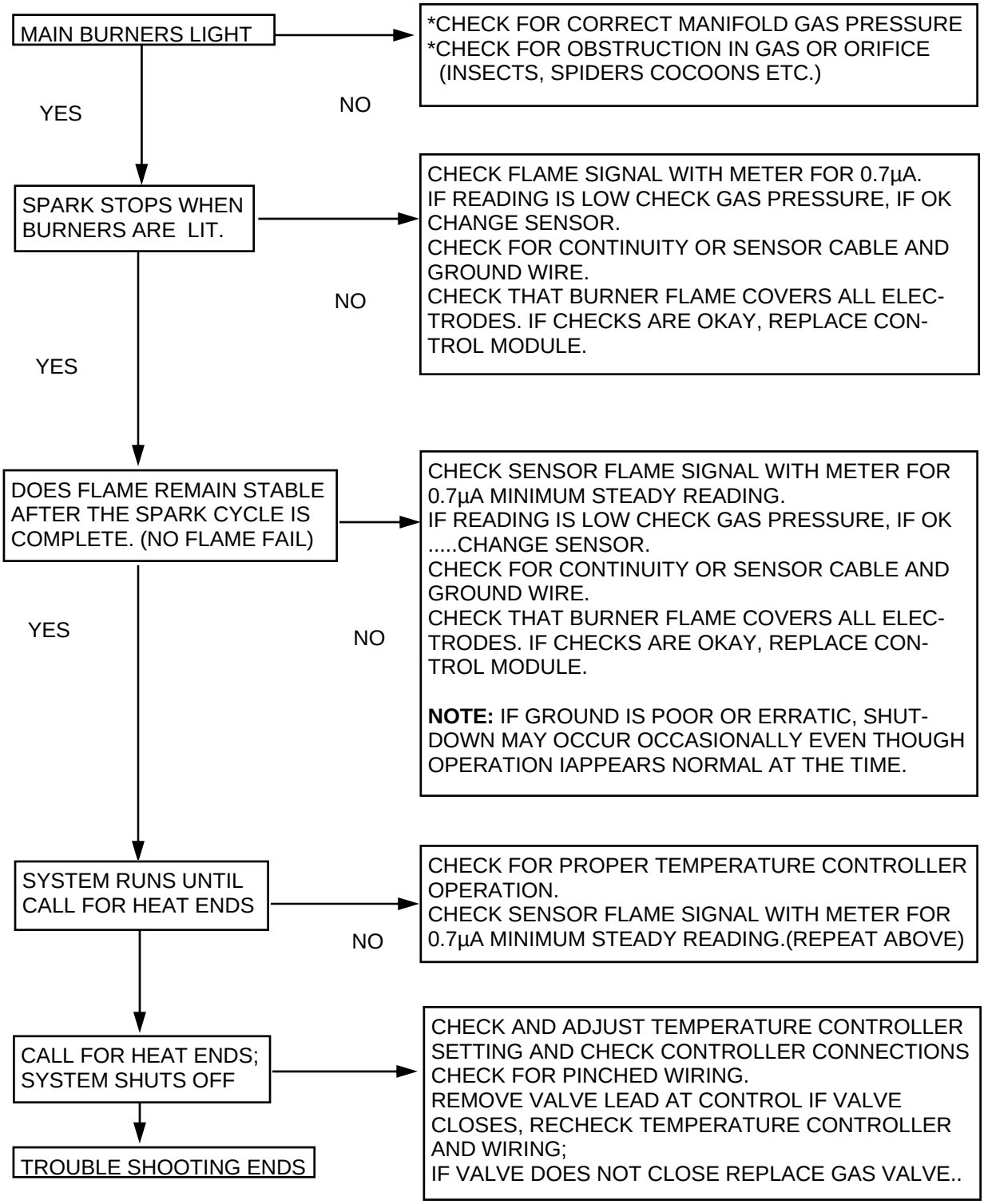
Error Mode	LED Indication
Internal Control Failure	Steady on
Flame with No Call for heat	2 flashes
Ignition Lockout	3 flashes

Fault Conditions:

The LED will flash on for 1/4 second, then off for 1/4 second during a fault condition. The pause between fault codes is 3 seconds.

13. TROUBLESHOOTING GUIDE


TURN HEATER ON :
(AT PATIO CONTROL PANEL IF INSTALLED)
*CHECK 120 V AT PRIMARY TRANSFORMER
*CHECK VOLTAGE OUT AT SECONDARY.
*IF THERE IS NOT 24V TO SECONDARY....
.....REPLACE THE TRANSFORMER
YES
NO
24 VOLTS INTO DSI CONTROL
*CHECK 24V WIRING FROM TRANSFORMER TO IGNITION CONTROL / AND CHECK IF CORRECT GAUGE OF WIRE FOR DISTANCE.
*REPLACE WIRES IF NECESSARY.
NO
YES
24 VOLTS OUT FROM CONTROL
*CHECK FOR 24 VAC ACROSS GAS VALVE TERMINALS ON CONTROL. IF NO VOLTAGE,
.....REPLACE CONTROL.
NO
YES
24 VOLTS AT GAS CONTROL
*ENSURE GAS IS TURNED ON AT VALVE.*CHECK ELECTRICAL CONNECTIONS AT CONTROL & GAS VALVE.
*CHECK 24V WIRING CONTINUITY FROM DSI IGNITION CONTROL TO GAS VALVE, RE
NO
YES
GAS VALVE OPENS.
IF 24V IS PRESENT AND VALVE DOES NOT OPEN.....REPLACE VALVE
NO
YES
SPARK ACROSS IGNITER.
IS HIGH VOLTAGE SPARK OK ?
*PERFORM IGNITION LEAD TEST DESCRIBED IN “SPARK IGNITION CIRCUIT”.
*CHECK DSI MODULE IGNITION POST FOR DEFECTS.
*SPARK IGNITER MAY BE OUT OF POSITION.
*CHECK BOOT OF THE IGNITION CABLE FOR SIGNS OF MELTING OR BUCKLING. TAKE PROTECTIVE ACTION TO SHIELD CABLE & BOOT FROM EXCESSIVE TEMPERATURES.
*CHECK CERAMIC INSULATOR FOR CRACKS *
*CHECK SPARK GAP, 1/8”-3/16” .
*CHECK IGNITION CABLE, AND GROUND WIRE,
NO
YES
MAKE SURE THE MANUAL LEVER ON THE GAS VALVE IS OPEN AND THAT THERE IS GAS SUPPLY TO THE VALVE.


MAIN BURNERS LIGHT
*CHECK FOR CORRECT MANIFOLD GAS PRESSURE
*CHECK FOR OBSTRUCTION IN GAS OR ORIFICE
(INSECTS, SPIDERS COCOONS ETC.)
NO
YES
SPARK STOPS WHEN BURNERS ARE LIT.
CHECK FLAME SIGNAL WITH METER FOR 0.7µA.
IF READING IS LOW CHECK GAS PRESSURE, IF OK CHANGE SENSOR.
CHECK FOR CONTINUITY OR SENSOR CABLE AND GROUND WIRE.
CHECK THAT BURNER FLAME COVERS ALL ELEC-TRODES. IF CHECKS ARE OKAY, REPLACE CON-TROL MODULE.
NO
YES
DOES FLAME REMAIN STABLE AFTER THE SPARK CYCLE IS COMPLETE. (NO FLAME FAIL)
CHECK SENSOR FLAME SIGNAL WITH METER FOR 0.7µA MINIMUM STEADY READING.
IF READING IS LOW CHECK GAS PRESSURE, IF OK .....CHANGE SENSOR.
CHECK FOR CONTINUITY OR SENSOR CABLE AND GROUND WIRE.
CHECK THAT BURNER FLAME COVERS ALL ELEC-TRODES. IF CHECKS ARE OKAY, REPLACE CON-TROL MODULE.
NOTE: IF GROUND IS POOR OR ERRATIC, SHUT-DOWN MAY OCCUR OCCASIONALLY EVEN THOUGH OPERATION IAPPEARS NORMAL AT THE TIME.
YES
NO
SYSTEM RUNS UNTIL CALL FOR HEAT ENDS
CHECK FOR PROPER TEMPERATURE CONTROLLER OPERATION.
CHECK SENSOR FLAME SIGNAL WITH METER FOR 0.7µA MINIMUM STEADY READING.(REPEAT ABOVE)
NO
CALL FOR HEAT ENDS; SYSTEM SHUTS OFF
CHECK AND ADJUST TEMPERATURE CONTROLLER SETTING AND CHECK CONTROLLER CONNECTIONS
CHECK FOR PINCHED WIRING.
REMOVE VALVE LEAD AT CONTROL IF VALVE CLOSES, RECHECK TEMPERATURE CONTROLLER AND WIRING;
IF VALVE DOES NOT CLOSE REPLACE GAS VALVE..
TROUBLE SHOOTING ENDS

NOTE: IF CONTROL GOES INTO LOCKOUT, THE SYSTEM CAN BE RESET BY INTERRUPTING THE POWER SOURCE:

14. COMMISSIONING REPORT
AS PER I&O MANUAL AND LOCAL CODES

CONTRACTOR NAME: .....DATE.....

ADDRESS:.....

.....

CITY:.....

PHONE:.....

CELL: .....

JOB SITE.....CITY.....

HEATER MODEL NUMBER:.....

HEATER SERIAL NUMBER: .....

EQUIPMENT HAS BEEN FACTORY FIRED AND TESTED BEFORE DELIVERY, NEVERTHELESS IT IS NOT A PLUG IN APPLIANCE..IT DOES REQUIRE COMMISSIONING AND FIELD ADJUSTMENTS

TO ENSURE THAT SITE CONDITIONS ARE COMPATIBLE WITH THIS HEATER, AND TO ALLEVIATE NUISANCE CALL BACKS FOR THE CONTRACTOR, THE FOLLOWING START-UP NEEDS TO BE COMPLETED BY THE LICENSED GAS INSTALLER.

A CONTRACTOR CALLING FOR TECHNICAL SUPPORT *MUST* PROVIDE THE FOLLOWING INFORMATION FROM HIS COMPLETED COMMISSIONING REPORT (NEXT PAGE)

ON NEXT PAGE

FAX COMPLETED FORM TO TECHNICAL SERVICES: CANADA - 905-712-8336 USA - 706-554-9390

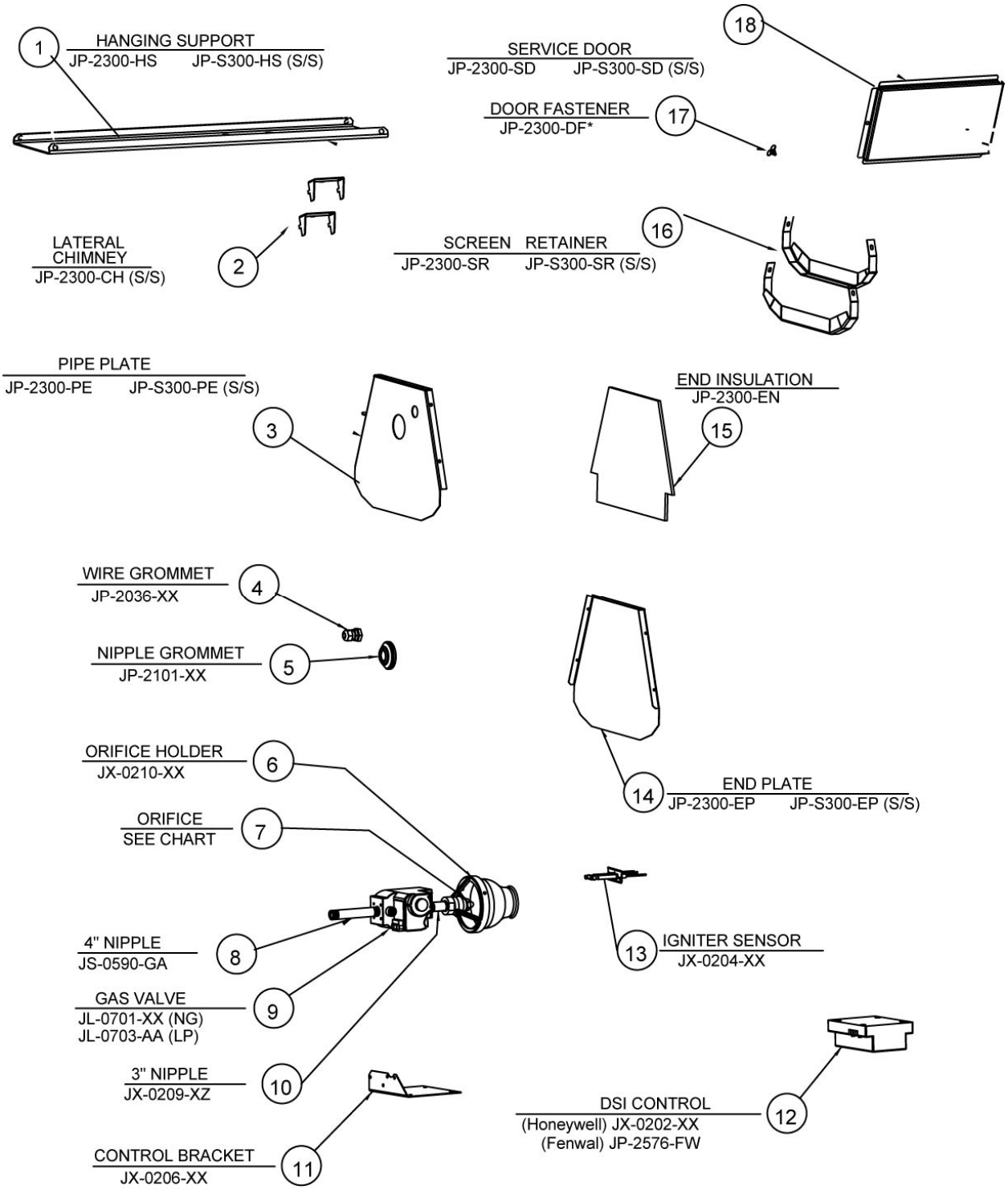
TO BE COMPLETED BY THE LICENSED INSTALLER:
PATIO HEATER COMMISSIONING REPORT

TYPE OF GAS:	NG ☐	LP ☐
IS HEATER EXPOSED TO CHEMICAL OR CORROSIVE ATMOSPHERE:	YES ☐	NO ☐
IS AN OPEN FLAME COMPATIBLE WITH THE INSTALLED LOCATION:	YES ☐	NO ☐
MINIMUM CLEARANCES CONFORM AS PER I&O MANUAL:	YES ☐	NO ☐
IF THIS IS A HIGH ALTITUDE AREA WHAT IS THE ALTITUDE ABOVE SEA LEVEL	☐	Feet
IS HEATER SHORT AXIS HORIZONTAL WITH THE VENTURI ON TOP:	YES ☐	NO ☐
IS GAS SUPPLY LINE ADEQUATELY SIZED FOR SYSTEM VOLUME:	YES ☐	NO ☐
HAVE GAS LINES AND BRANCHES BEEN PURGED OF AIR:	YES ☐	NO ☐
THIS HEATER WAS FIELD TEST FIRED WITHOUT ANY MALFUNCTION:	YES ☐	NO ☐
INLET GAS SUPPLY PRESSURE WITH HEATER OPERATING:	☐	WC"
GAS VALVE OUTLET (Manifold) PRESSURE WITH HEATER OPERATING:	☐	WC"
HAS THE WIRING POLARITY BEEN MAINTAINED THROUGHOUT:	YES ☐	NO ☐
WHAT IS THE VOLTAGE READING AT THE IGNITION MODULE:	☐	VOLTS
WHAT IS THE FLAME SIGNAL STRENGTH IN uA FROM SENSOR:	☐	uA (microamps)
IS THE HEATER CONTROLLED BY A THERMOSTAT:	YES ☐	NO ☐
IS THE THERMOSTAT STRATEGICALY LOCATED:	YES ☐	NO ☐
TOTAL HEATERS SUPPLIED FROM ONE SINGLE TRANSFORMER:	☐	TOTAL
WHAT IS THE RATING OF THE TRANSFORMER IN VA:	☐	V.A.
WHAT IS THE TOTAL LENGTH OF THE LOW VOLTAGE WIRING:	☐	FEET
WHAT IS THE GAUGE OF THE LOW VOLTAGE WIRING:	☐	GAUGE
DOES THE HEATER HAVE GOOD ELECTRICAL GROUNDING:	YES ☐	NO ☐

*** FAX COMPLETED FORM TO TECHNICAL SERVICES: CANADA - 905-712-8336 USA - 706-554-9390**

15. Replacement Parts List

Only the following illustrated parts are available. For any other parts please contact the manufacturer.



Schwank
INNOVATIVE HEATING SOLUTIONS

LIMITED WARRANTY CERTIFICATE

infrasave
radiant heaters

GAS-FIRED INFRA-RED PATIO HEATERS : 2300 / IO 210 SERIES

The Manufacturer warrants that this product is free from defects in material or workmanship under normal use and service subject to the terms of this document.

ONE YEAR WARRANTY

Subject to the conditions and limitations stated herein, during the term of this limited warranty, we will supply any component part (at our option a new or repaired component part) of the heater, as defined below, excluding any labor, which the Manufacturer's examination determines to be defective in workmanship or material for a period of one year (1 year) from the date of installation, unless otherwise specified below. This warranty applies to the heater's original owner, and subsequent transferees and only if the unit is installed and operated in accordance with the printed instructions accompanying the unit and in compliance with all applicable installation, building codes and good trade practices.

BURNER AND CERAMIC TILE - THREE YEAR WARRANTY

The manufacturer warrants the burner and ceramic tile for a period of three years. (3 years)

WHAT IS NOT COVERED

The Manufacturer shall not be responsible for any expenses, including service, labor, diagnosis, analysis, material or transportation charges incurred during removal or reinstallation of this product, or any of its components or parts. All labor or service charges shall be paid by the owner. This warranty does not cover heating products improperly installed, misused, exposed to or damaged by negligence, accident, corrosive or contaminating atmosphere, water, excessive thermal shock, impact, abrasion, normal wear due to use, alteration or operation contrary to the owner's manual or if the serial number has been altered, defaced or removed. This warranty shall not apply if the input to the heating product exceeds by more than 2% of the rated input on the rating plate. The Manufacturer shall not be liable for any default or delay in performance by its warranty caused by any contingency beyond its control, including war, government restrictions, or restraints, strikes, fire, flood, acts of God, or short or reduced supply of raw materials or products.

WARRANTY PROCEDURE

To establish the installation date for any purpose under this Limited Warranty, you must retain the original records that can establish the installation date of your unit. If you do not provide such documents, the start date of the term of this Limited Warranty will be based upon the date of unit manufacture, plus thirty (30) days. Failure to maintain the equipment through regular annual service maintenance by a qualified service technician shall void the warranty.

LIMITATIONS AND EXCLUSIONS

This document contains all warranties made by the Manufacturer and may not be varied, altered or extended by any person. There are no promises, or agreements extending from the Manufacture other than the statements contained herein. THIS WARRANTY IS IN LIEU OF ALL WARRANTIES EXPRESSED OR IMPLIED, TO THE EXTENT AUTHORIZED BY THE LAWS OF THE JURISDICTION, INCLUDING SPECIFICALLY THE WARRANTIES OR MERCHANTIBILITY OF FITNESS FOR A PARTICULAR PURPOSE.

It is understood and agreed that the Manufacturer's obligation hereunder is limited to repairing or replacing parts determined to be defective as stated above. In no event shall the Manufacturer be responsible for any alleged personal injuries or other special, incidental or consequential damages. As to property damages, contract, tort or other claim the Manufacturer's responsibility shall not exceed the purchase priced paid for the product.

All replacement parts will be warranted for the unused portion of the warranty coverage period remaining on the applicable unit.

Some Authorities do not allow certain warranty exclusions or limitations on how long a warranty lasts or the exclusions or limitations of incidental or consequential damages. In such cases, the above limitations or exclusions may not apply to you and are not intended to do so where prohibited by law. This warranty gives you specific legal rights. You may also have other rights which vary by each jurisdiction.

5285 BRADCO BLVD. MISSISSAUGA, ON, L4W 2A6
2 SCHWANK WAY, WAYNESBORO, GEORGIA. 30830-8336

SCHWANK **Ph: 905-712-4766 Fax: 905-712-8336**
INFRASAVE **Ph: 1-866– INFRASV (463 7278) Fax: 1-866-724 –9265**

GP-D230-BX-03B
2300 / IO 210 WARRANTY
March 2006
RL: 3B
KH